III. Awa Phonemes, Tonemes, and Tonally Differentiated Allomorphs

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1. Introduction

Tonally differentiated allomorphs in noun phrases as well as the tonomes and segmental phonemes of Awa will be described in this paper.[1]

An interesting feature of Awa noun phrases is that most noun suffixes do not have basic tonemes but derive their tonemes depending on: (A) the suffix stem class of which they are a part; (B) the toneme of the preceding syllable; (C) whether or not the preceding toneme has been perturbed; (D) the class of the stem on which they occur.

In the first few days of language study, minimal toneme pairs of object words in isolation indicated the presence of phonemic tone levels.

A unique feature of segmental phonemes in Awa is the occurrence of /eh/ as a seventh vowel phoneme in an area of five and six vowel languages.

2. Segmental Phonemes

The segmental phonemes of Awa include nine consonants: *p, t, s, k, q, m, n, w, y;* and seven vowels: *i, u, e, o, eh, a, ah.*[2]

[1] The material for this paper was gathered over a one and a half year residence at the village of Mobuta under the auspices of the Summer Institute of Linguistics. The author is indebted to Eunice Pike, Dorothy James, and Alan Pence for editorial help in preparation of this paper. The paper was first published as pp. 23-32 in *Papers in New Guinea Linguistics, No. 5,* Linguistic Circle of Canberra Publications (Series A: Occasional Papers, No. 7) (Australian National University, 1966), and is used here in its present form by permission.

[2] [My data indicate that there are 12 consonants rather than the 9 cited by Loving, adding *b, d,* and *g.* In Sec. 2.2 Loving analyzes the voiced stops as variants of the voiceless. His interpretation seems to be based upon the fact that voiced phones never appear in initial position. He interprets voiceless stops occurring between vowels as a sequence of glottal stop and one of the stop phonemes. He then makes the voiced

2.1. *Consonantal Contrast*

The stops and affricate /p, t, s, k, q/ contrast as in: *ipisehq*[3] 'He cries', *itiă* 'raw', *ísiq* 'He plucks', *kíkíq* 'It is crowded', *iqisá* bird name. The nasals /m, n/ contrast as in *níéq* 'They gave me', *míéhq* 'He is there.' The semivocoids /w, y/ contrast as in: *ehyehyéhtiq* 'drought', *ehwĕh* 'talk'.

2.2. *Consonantal Variation*

A voiced variant of the stops /p, t, k/ occurs intervocalic following front vowels as in [ibiɕæ?] 'He cries', [idigi?] 'He stands', [kîgí?] 'It is crowded.'[4] A voiced flap variant of the stop /t/ and a voiced fricative variant of the stops /p, k/ occur intervocalic following central and back vowels as in [ɔře] 'woman', [uɓe] 'sand', [ogɔ̌] 'alive'. A voiced affricate variant of the affricate /s/ occurs following /n/ as in [wɔndžó] 'ghost'. A velar variant of the nasal /n/ occurs preceding the stop /k/ as in [awɔŋkó] 'tree' [my data have *awɔŋgɔ* H. M.].

A voiced alveopalatal grooved fricative occurs as an allophone of /y/ pre-

variety between vowels a variant of the phoneme rather than a phoneme in its own right.]

[I find in my data, however, that the voiceless and voiced stops contrast following the nasals. Phonemes /p/ and /b/ following the bilabial nasal occur as in the following examples: *tampehra* 'banana', *kampi kampi* 'point', *arampehri* 'work'; *anahmbi* 'banana', *ahmbahra* 'bean', *ahmbiuq* 'belly', *kamborah* 'cassowary'. The voiceless and voiced aleveolar stops contrast following the aleveolar nasal as in the following examples: *ambanta* 'skirt or garment (lap-lap)', *tontonah* 'gray hair', *pentoruq* 'old or dry banana leaf', *tauntau* 'quick'; *kandi* 'arrow', *ahnde* 'many', *kahndigara* 'greater'. The velar stops contrast after the velar nasal which is an allophone of the alveolar nasal: *pankeqme* 'stand', *monke* 'blue', *anonka* 'body', *sosunkura* 'pupil (eye)'; *mengamehnga* 'animal', *mangara* 'blue', *tawehngi* 'ant', *ongi* 'garden'. This sequence also occurs in the reverse order in *tiriyehgnah* 'lime'. These contrasts added to the intervocalic occurrence of voiced obstruents in contrast to the voiceless stops do not permit, in my view, the interpretation given by Loving.]

[A few comments about the phonetic characteristics of the segmental phonemes of Awa are also in order at this point. Between vowels, the voiced bilabial and velar obstruents are stops following front vowels and fricatives elsewhere. The aleveolar voiced obstruent is flapped. The affricate phoneme (*s*) is aleveolar to alveopalatal and is voiced following a nasal as Loving indicates. Loving covers the variants of the nasal phoneme and also the semivowels adequately. The vowels are high, front and back; mid, front and back; and low, front and back, the phoneme /ah/ being a back rounded vocoid as are the other two back vowels (here and elsewhere the digraph is used as is *eh* for [æ]). The central phoneme indicated as /a/ varies from the mid position [ə] to the low central position [a]. As Loving indicates in Section 2.4, the front back and central vowels are short in initial and medial positions, but long in final positions. The phoneme /a/ is the low variant when long, but tends toward the mid position in initial and medial occurrence. H.M.]

[3] Except where examples of tonemes are given, low toneme throughout this paper will be unwritten.

[4] [In the original article, Loving presented the medial voiceless stops as sequences of glottal plus stop. Thus initial voiceless stops and medial voiced stops and fricatives were treated by him as allophones. I prefer to present the material as outlined in footnote 2, above. I have therefore omitted Loving's 'phonemic' transcriptions, leaving only the phonetic entry as in the original article. H.M.]

ceding the vowel /i/ and less frequently fluctuates with [y] in other environments as in: [əži] tree name, [əʁuži] woman's name, [əžu] ~ [əyu] 'seed', [ožô?medô?] ~ [oyô?medô?] 'They pulled up.'

2.3. *Vocalic Contrast*

The seven vowels contrast as in: *píti* 'heart', *putuputu* 'thunder', *petaté* 'banana', *pontŏ* 'harp', *pehtahqkotah* 'naked', *pátéqta* 'plate', and *pahtahni* 'person' [5]

2.4. *Vocalic Variants*

Word initial /um/ is actualized etically as a portmanteau phone, [m·], as in [m·o?] */umoq/* 'rat'.

The vowels /i, u, a/ occur as short vowels initially and medially. Word final, either in isolation or at the end of a phonological phrase, these vowels occur with length as in: [idobîbĭ·] 'noise', [puřuʁuřu·] 'thunder', [kəʁəra·] 'bird'.

2.5. *Distribution of Segmental Phonemes in Relation to the Syllable and Word*

A syllable consists of a single vowel nucleus plus an optional onset and an optional coda; that is, the patterns CV, CVC, V, VC occur. All consonants except glottal stop occur syllable initial. Only nasals and glottal stop occur syllable final. Any vowel may fill the slot of any syllable type. Only one toneme occurs with any one syllable.

Within a phonological word, any consonant may occur intervocalic. All but /y, q/ occur word initial. Only /q/ occurs word final. Across syllable boundaries the following consonant clusters occur: /mp/, /nt/, /ns/, /nk/, /qm/, /qn/, /qp/, /qt/, /qk/ [the last three sequences not found in my data H.M.]. These clusters occur only word medial, never initial or final.

The seven vowels each occur word initial, medial, and final, and also preceding and following each of the consonants.

The vowels /o, eh, a, ah/ have not been observed preceding either /eh/ or /ah/ within words. All other combinations of vowels are possible in sequences of two. In sequences of three, the following combinations have been observed: /iahu/ *ániahú* 'mother and daughter', /iahe/ *ahpíahe* 'tomorrow', /iahu/ *iwiáhiaq* 'He is thinking', /iaho/ *iwiáho* 'think', /iehi/ *ahpièhî* 'grass ashes', /iai/ *katiaiq* 'slippery', /iueh/ *íúéh* 'our mouth', /uehi/ *nuehĭ* 'my chin', /eoe/ *koweoe* 'Go and bring!', /oia/ *ahpitoia* 'disintegrated', /ehia/

[5] [Note: Whenever Loving uses *t* between vowels, it represents the flapped voiced alveolar obstruent which I symbolize as /d/. A sequence of *qt* equates with my voiceless stop *t*. Parallels to this are the same for *p* = *b*, *qp* = *p*; *k* = *g* and *qk* = *k*. It is not possible in Loving's transcription, nor from his description, to know if the obstruents are voiced or voiceless before nasals. I have *pondo* for 'harp'. H.M.]

ehîa 'silent', /aio/ *aiô* 'toe joint', /aoi/ *paoiq* 'He married', /aie/ *aie* 'foot!', /aea/ *maeawĕ* 'animal fat', /ahoe/ *iwiáhoe* 'Think!' In sequences of four the following combination occurs: /iahoe/ *iwiáheo* 'Think!'

Any syllable type may occur word initial, medial, or final. A sequence of V syllables within a word occurs in contrast with a sequence of VCV syllables in which the C is /w/ or /y/ as in: *aiaq* 'stem', *ayă* 'intestines', *atàhûe* 'why', *áhwánah* 'different'.

3. Tonemes

Awa tonemes include high, falling, rising, and low.

3.1. *Tonemic Contrast*

In one-syllable words there is contrast between these tonemes as in: *náh* 'breast', *nâh* 'taro', *păh* 'fish', *nàh* 'house'.

In two-syllable words ten of the possible sixteen toneme combinations occur as in: *táti* 'dew', *tápăh* beetle name, *áhtè* 'afraid', *nâhpô* 'Is it a taro?', *nâhmĭq* 'It is a taro', *âhqmè* frog name, *àhqkí* 'yam', *màhgô* man's name, *àhtĕ* 'ear', *àhtè* 'woman'. Of the sixteen possible patterns, note that four of the six which do not occur are those in which the initial toneme is rising. The two remaining patterns, high-falling and falling-high, occur on the last two syllables of three-syllable words as in: *wènáwèh* 'his sister's husband', *áwèhwá* 'sister's husband'.

In three-syllable words all tonemes contrast word final as in: *kàmpòtá* 'cassowary', *àyàhtă* 'hair', *òtìtâ* 'taboo', *kapata* 'bird'. All tonemes except rising contrast word medial as in: *kàpáhtè* bird name, *kàpâhtà* 'bamboo', *àyàhpà* 'belly'. All tonemes except rising contrast word initial as in: *tónànà* 'bark belt', *môqkàkè* 'someday', *nònàhwè* 'fog'. Of the sixty-four possible combinations of these tonemes on three-syllable words, twenty-three have been found to occur. See examples above and the following: *òyétá* 'egg', *áwìăh* 'his tibia', *nònáwĕhq* 'ditch', *pòpâhkíq* 'whistle', *nánúèh* 'my sister's husband', *wènáwèh* 'his sister's husband', *áwèhwáh* 'sister's husband', *èhîă* 'silent', *àhkàhmpŭ* 'deaf', *wáhnèpâh* 'casuarina', *téhqtàté* 'two', *téhqtúkàh* 'trap', *átúó* 'his lips'.

3.2. *Tonemic Variants*

High toneme has a range of phonetic variants as follows. Utterance final high occurs as a phonetic upglide from high, while nonfinal highs in a series step gradually up from a high mid pitch to the final upglide. Elsewhere high toneme occurs as phonetic high pitch.

Examples: ^{5}*ík*^{4}*ah*^{3}*tah*$^{2-1}$*se* /íkáhtáhsé/ oppossum name; *teh*^{2}*ta*^{8}*te*$^{2-1}$ /téhtàté/ 'two'; *o*^{2}*ti*^{7}*ta*$^{8-9}$ /ótìtà/ 'taboo'; *kah*^{8}*qto*^{2}*qpe*$^{8-9}$ /kàhqtóqpè/ 'potato'.

Falling toneme has a range of phonetic variants as follows. Following high

toneme it glides from high to mid. Between high and low, or utterance final following high, it glides from high to low. Utterance final following other than high it glides from mid to low. Utterance medial following tonemes other than high its pitch is level mid.

Examples: *awehwa* /áwêhwá/ 'sister's husband'; *nanuweh* /nánúwêh/ 'my sister's husband'; *kapahta* /kàpâhtà/ 'bamboo'; *ahkahmpu* /àhkâhmpû/ 'deaf'; *ayahqno* /àyàhqnô/ 'head'.

Rising toneme occurs as a glide from low to low mid as in: *apiah* /àpìăh/ 'nose'; *o* /o/ 'new'.

Low toneme has a range of phonetic variants as follows. Utterance final low occurs as a phonetic downglide from low. The final low in a series of lows preceding high toneme is low in pitch, while nonfinal lows in a series step gradually down from a low mid pitch to the final low in the series. Elsewhere low toneme occurs as phonetic low pitch.

Examples: *tahmemiah* /tàhmèmìàh/ opossum name; *ahte* /àhtè/ 'woman'; *tunsotetiq* /tùnsòtètíq/ 'afternoon'; *kahqtoqpe* /kàhqtóqpè/ 'potato'.

3.3. *Tonemic Distribution*

All of the tonemes occur with each of the vowels word final. High, falling, and low tonemes occur with each of the seven vowels word medial. High and low tonemes occur with each of the vowels word initial. Falling toneme occurs with /o/ and /ah/ word initial. It is expected that a larger corpus of data will reveal the occurrence of falling toneme with more of the vowels word initial. Not more than two falling tonemes have been observed in sequence. Rising toneme occurs only word final.

Low toneme is the most frequent in occurrence. The next most frequent is high toneme. Rising toneme is the least frequent. In ten pages of Awa folktale text the percentage of occurrences were as follows: low 68 percent, high 22.8 percent, falling 5.4 percent, and rising 3.8 percent. The percentage of rising tonemes would be higher in a listing of lexical items since word-final rising tonemes are perturbed to low tonemes phrase medially in text.

4. TONALLY DIFFERENTIATED ALLOMORPHS IN NOUN PHRASES

Two types of tonemic perturbation occur throughout the language:

A. A word-final rising toneme becomes low whenever followed by another word in the same phonological phrase as in: *pĕh* 'just' plus *póétáhq* 'pig' becomes *pèh póétáhq* 'just a pig'; *pĕh* 'just' plus *nâh* 'taro' becomes *pèh nâh* 'just taro'.

B. A word-initial low toneme becomes a falling toneme whenever preceded in the same phonological phrase by a word whose final toneme is rising as

The Languages of the Eastern Family of the East New Guinea Highland Stock

Edited by HOWARD McKAUGHAN

This book is published with the assistance of a grant from the National Science Foundation.

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Printed in the United States of America

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Library of Congress Cataloging in Publication Data
Main entry under title:

The Languages of the eastern family of the east New Guinea highland stock.

(Anthropological studies in the eastern highlands of New Guinea, v. 1)
Reports of research by the New Guinea Microevolution Project.
Bibliography: p.
1. Papuan languages. 2. Kainantu region—Languages. I. McKaughan, Howard, 1922- ed. II. Title. III. Series.
PL6601.A35 499'.12 72-13131
ISBN 0-295-95132-X

Anthropological Studies in the Eastern Highlands of New Guinea
James B. Watson, *Editor*

VOLUMES PUBLISHED:

I. The Languages of the Eastern Family of the East New Guinea Highland Stock, edited by Howard McKaughan
II. Physical Anthropology of the Eastern Highlands of New Guinea, by R. A. Littlewood

UNIVERSITY OF WASHINGTON PRESS
SEATTLE AND LONDON